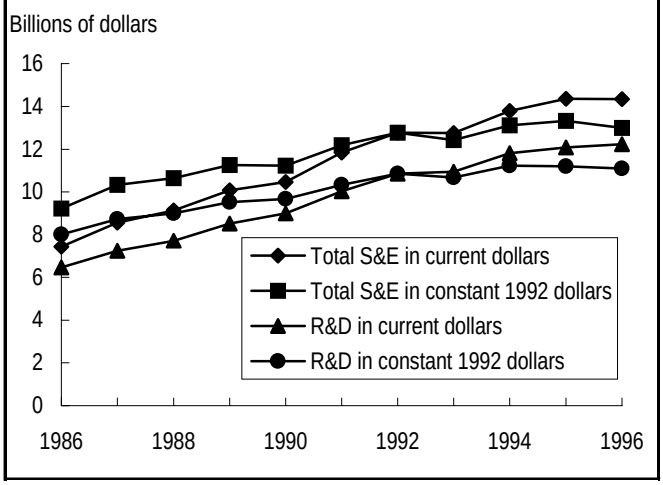
OVERVIEW

In fiscal year (FY) 1996, Federal agencies obligated $14.3 billion for academic science and engineering (S&E), about $20 million below the FY 1995 level.[1] This is only the fourth time since the first year of survey data (FY 1963) that current dollar obligations decreased. After adjustment for inflation, the decrease exceeded 2 percent.

CATEGORIES OF SUPPORT

Federal academic S&E funds are provided in the following six categories: (1) research and development (R&D); (2) fellowships, traineeships, and training grants (FTTG); (3) R&D plant; (4) facilities and equipment for instruction; (5) general support for S&E; and (6) other S&E activities. Between FYs 1986 and 1996, R&D programs consistently have received by far the largest share of total academic S&E obligations, ranging from 84–87 percent of the total (figure 1). Academic R&D funds totaled $12.2 billion in FY 1996, a 1-percent current-dollar increase (and a 1-percent decrease in 1992 dollars) from the previous year (table 1). Department of Health and Human Services (HHS) projects accounted for 56 percent ($6.8 billion) of all FY 1996 Federal academic R&D obligations.

Figure 1. Federal academic science and engineering (S&E) and S&E research and development (R&D) obligations: FYs 1986–96



SOURCE: NSF/SRS, *Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions: FY 1996*

Table 1. Federal academic S&E support, by type of activity: FYs 1995–96

Type of activity	FY 1995	FY 1996	Current dollars	1992 dollars
	(Millions of dollars)		(Percentage change)	
Total S&E	$14,361	$14,338	-0.2%	-2.4%
R&D	12,081	12,236	1.3	-1.0
R&D plant	341	248	-27.3	-28.9
Facilities and equipment for instruction	52	49	-5.0	-7.1
Fellowships, traineeships, and training grants	674	636	-5.7	-7.8
General support for S&E	264	210	-20.5	-22.3
Other S&E	949	959	1.1	-1.2

KEY: S&E = science and engineering
R&D = research and development

NOTE: Percentages are based on unrounded numbers.

SOURCE: NSF/SRS, *Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions: FY 1996*

Each of five other academic S&E categories had a lower funding level in FY 1996 in inflation-adjusted dollars, with only obligations for "other S&E activities" higher than the FY 1995 level in current terms (by 1 percent, to $959 million). This category includes all academic S&E activities that cannot be meaningfully assigned to one of the five other categories. Examples include activities in support of technical conferences and teacher institutes and programs to increase the scientific knowledge of precollege and undergraduate students.

R&D plant obligations were down 27 percent in current dollars to $248 million, largely a result of decreased National Science Foundation (NSF) funding. FTTG support decreased 6 percent, to $636 million, mostly due to a decline in support from the National Aeronautics and Space Administration (NASA) and the Department of Education (ED). Funds for facilities and equipment for instruction were down 5 percent, to $49 million. General support for S&E totaled $210 million, a 21-percent

[1] The decrease in agency funding would appear even greater except that two agencies—the General Services Administration and the Office of Justice Programs (part of the Department of Justice)—and another subagency of the Department of Commerce—the National Telecommunications and Information Administration—were added to this survey for the first time for the FY 1996 data collection period. Collectively, these agencies obligated $12.5 million in academic S&E in FY 1996.

decrease, mostly due to reductions reported by the Agency for International Development (AID). General support for S&E includes programs that support nonspecific or generalized purposes related to scientific research and education. Projects in this category include, for example, those without any specification of purpose other than that the funds be used for scientific projects and support for activities within specified disciplines.

Agency Sources

In FY 1996, HHS accounted for just over one-half of all Federal academic S&E obligations. When combined with support from NSF and the Department of Defense (DoD), these three agencies were responsible for nearly four-fifths of the total academic S&E funds. Only HHS, however, reported real growth in S&E obligations (2 percent); both NSF and DoD reported decreased funding levels in both current and constant-dollar terms. The Department of Agriculture (USDA), NASA, and the Department of Energy (DOE) were responsible for about four-fifths of the remaining academic S&E total. Of those three agencies, only DOE reported an increase in S&E obligations.

University Shares

The top 100 university recipients of Federal S&E obligations in FY 1996 (out of 1,082 institutions, excluding 40 system offices) accounted for 81 percent of the S&E total and 83 percent of academic R&D. All of the leading 100 academic institutions grant doctorate degrees. In FY 1996, only 32 percent of all academic institutions receiving Federal S&E obligations granted doctorates, but nearly 97 percent of all academic S&E support was obligated to doctorate-granting institutions.

In FY 1996, Johns Hopkins University (including its Applied Physics Laboratory) was the leading academic recipient of Federal S&E obligations ($729 million). DoD and HHS provided 87 percent of the university's funding total (table 2). More than 5 of every 6 dollars in S&E support to Johns Hopkins University were for R&D programs.

The leading 20 universities, ranked by the amount of Federal S&E support received, accounted for 36 percent of the academic S&E total. Eighteen of the top 20 academic S&E recipients in FY 1996 were among the top 20 universities in FY 1995. The new entrants were Washington University (ranked 16th after being 21st the year before) and the University of North Carolina at Chapel Hill (20th, up from 22nd in FY 1995). The University of Pittsburgh and the University of California at Berkeley fell out of the top 20 in FY 1996. The 20 leading university recipients received 42 percent of DoD's academic S&E support in FY 1996, and 40 percent of HHS' academic S&E total. A smaller, 32-percent share of NSF's academic S&E support went to those top 20 recipient universities.

Geographic Distribution

In FY 1996, 13 states accounted for just under two-thirds of all Federal academic S&E support. Each of those states had institutions of higher education that collectively received more than $300 million in S&E obligations (table 3). These states are located along the Atlantic and Pacific coasts and within the East North Central (i.e., Great Lakes) Region. Academic institutions in Texas were the only recipient of more than $300 million outside of those regions. The nine states receiving the largest amounts of Federal academic S&E obligations in FY 1995 maintained the same ordinal positions in FY 1996. Universities and colleges within those 13 states accounted for over two-thirds of all federally financed R&D expenditures at doctorate-granting institutions, with each state having more than $300 million in such R&D expenditures.[2]

Historically Black Colleges and Universities (HBCUs)

Federal S&E support to 79 HBCUs decreased 12 percent (after a 17-percent increase the previous year) and totaled $288 million in FY 1996. R&D projects accounted for 65 percent of all HBCU support, considerably less than the 85-percent share among all academic institutions. The miscellaneous category "other S&E activities" accounted for the second largest portion of S&E obligations at both HBCUs (17 percent) and among all universities and colleges (7 percent). Howard University, with $34 million in S&E support and $29 million in R&D funds, was the leading HBCU recipient in terms of both total S&E and R&D obligations.

[2] NSF/SRS, *Survey of Academic Science and Engineering Expenditures:FY 1996.*

Table 2. Federal academic S&E support to the top 20 universities: FY 1996

Rank	Institution	Total S&E	USDA	DoD	DOE	HHS	NASA	NSF	Other 2/
		(Millions of dollars)							
	Total, all institutions	$14,337.9	$883.4	$1,782.4	$655.8	$7,336.0	$757.9	$2,205.7	$716.6
1	Johns Hopkins Univ 1/	729.4	0.1	353.0	7.0	284.2	60.8	13.0	11.3
2	Univ of Washington	347.5	3.7	33.9	19.4	218.8	9.0	46.3	16.4
3	Stanford University	317.9	---	35.7	8.6	154.4	72.6	41.0	5.5
4	University of Michigan	282.4	0.7	31.4	8.0	180.8	11.4	38.5	11.7
5	MA Inst of Technology	261.3	0.0	47.8	69.0	59.2	38.0	42.2	5.2
6	U CA San Diego	257.2	0.3	30.5	13.6	136.0	11.3	48.3	17.3
7	Harvard University	242.1	0.0	8.4	5.5	171.4	9.7	28.5	18.5
8	University of PA	240.8	0.3	12.9	8.3	191.6	1.0	22.4	4.2
9	U CA San Francisco	235.1	0.2	9.3	2.0	218.9	1.3	2.6	0.9
10	U WI Madison	231.1	19.4	12.2	15.9	122.4	11.0	44.8	5.5
11	Cornell University	230.7	25.0	14.5	5.1	94.2	6.0	83.3	2.5
12	U CA Los Angeles	226.7	0.3	16.9	15.8	160.1	9.1	20.8	3.5
13	University of Minnesota	220.7	19.7	13.6	6.1	133.9	2.7	34.6	10.1
14	Yale University	211.9	0.5	11.1	9.9	175.6	1.0	13.1	0.8
15	Columbia U City NY	204.7	0.1	8.5	8.3	142.3	4.8	34.9	5.9
16	Washington University	198.9	0.4	6.0	3.0	173.8	3.3	11.9	0.4
17	University of Colorado	197.4	0.2	12.8	4.6	108.6	16.5	31.0	23.8
18	CA Inst of Technology	190.7	---	26.2	9.8	24.6	25.1	103.6	1.4
19	PA St U University Park	190.2	21.9	63.8	5.2	57.4	9.4	28.0	4.5
20	U of NC Chapel Hill	181.2	0.6	8.2	1.7	146.1	0.4	11.0	13.1
	Total, top 20 institutions	5,198.0	93.5	756.9	226.7	2,954.3	304.4	699.8	162.4

1/ Includes funding for the Applied Physics Laboratory

2/ Includes Department of Interior, Department of Commerce, Office of Justice Programs (part of Department of Justice), Department of Housing and Urban Development, Agency for International Development, Department of Labor, Department of Transportation, Environmental Protection Agency, Social Security Administration, Nuclear Regulatory Commission, General Services Administration, and Department of Education.

KEY: --- = Less than $50,000
S&E = science and engineering

SOURCE: NSF/SRS, *Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions: FY 1996*

Table 3. Federal academic science and engineering support to states receiving at least $300 million: FY 1996

State	S&E support	Share of total S&E
	(Millions of dollars)	(Percent)
S&E Total	$14,337.9	100.0%
California	1,994.2	13.9
New York	1,140.5	8.0
Maryland	938.4	6.5
Massachusetts	880.3	6.1
Pennsylvania	839.4	5.9
Texas	772.0	5.4
North Carolina	543.5	3.8
Illinois	521.4	3.6
Michigan	455.0	3.2
Ohio	400.0	2.8
Washington	393.8	2.7
Georgia	324.5	2.3
Florida	317.2	2.2
All other states	4,817.7	33.6

KEY: S&E = science and engineering

SOURCE: NSF/SRS, *Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions: FY 1996*

Of the 79 HBCU recipients of S&E obligations in FY 1996, 52 suffered current-dollar decreases from their FY 1995 levels. The top 20 HBCU recipients in FY 1996 accounted for 77 percent of all HBCU S&E support. USDA, HHS, and DoD combined obligated over two-thirds of all academic S&E funds to HBCUs in FY 1996. Virtually all (99 percent) of DoD's S&E obligations to HBCUs were for R&D programs.

Independent Nonprofit Institutions

In FY 1996, Federal agencies obligated $3.1 billion for S&E R&D and R&D plant to 1,133 independent nonprofit institutions (excluding obligations to Federally Funded Research and Development Centers administered by nonprofit institutions), a 3-percent

current-dollar decrease. This was the third such decline to these organizations in the last 4 years. Research institutes, numbering less than one-fourth of all recipient nonprofit organizations (which also include voluntary [nongovernmental] hospitals and other independent institutions such as private foundations and trade associations), received 55 percent of all nonprofit obligations. The proportional number of research institutes has decreased over time, but their proportional share of nonprofit support has remained strong. Ten years earlier, in FY 1986, research institutes accounted for 41 percent of all recipient nonprofits and received 69 percent of all nonprofit obligations.

Six of the top 10 nonprofits ranked by FY 1996 obligation levels were research institutes (table 4); (Draper Laboratories, Mitre Corporation, Sematech Inc., Fred Hutchinson Cancer Research Center, Battelle Memorial Institute, and SRI International). The three largest voluntary hospital recipients (Massachusetts General Hospital, Brigham and Women's Hospital, and Scripps Clinic & Research Foundation) were among the leading 10 nonprofit recipients for the 8th consecutive year. Nine of the top 10 nonprofits were among the leading 10 in FY 1995, with SRI International being the new entrant and the Association of Universities for Research and Astronomy no longer in the group. The top 10 nonprofits accounted for 35 percent of all Federal S&E R&D and R&D plant obligations to nonprofit institutions in FY 1996.

Of the total Federal obligations, HHS supplied 47 percent of all Federal S&E R&D and R&D plant support to nonprofit organizations in FY 1996, and 95 percent of such Federal funding to voluntary hospitals. DoD provided 32 percent of all Federal S&E R&D and R&D plant nonprofit obligations, and 86 percent of these DoD funds supported research institutes.

Table 4. Federal S&E R&D and R&D plant obligations to the leading 10 independent nonprofit institutions, ranked by total amount received in FY 1996

Institution and ranking	Total	DoD	DOE	HHS	NASA	NSF	Other
	(Millions of dollars)						
Total, all nonprofit institutions	$3,112.9	$999.5	$54.2	$1,477.4	$179.1	$158.5	$244.2
1. Draper Laboratories	221.3	215.1	0.0	0.0	6.2	0.0	0.0
2. Mitre Corporation	206.8	202.9	1.3	1.4	1.0	0.1	0.2
3. MA General Hospital	113.3	5.0	0.6	107.4	0.3	0.0	0.1
4. Brigham and Women's Hosp	99.8	0.9	0.0	96.8	1.3	0.5	0.2
5. Scripps Clinic & Rsch Fdn	92.2	3.2	0.5	88.5	0.0	0.0	0.0
6. Sematech, Inc	84.6	84.6	0.0	0.0	0.0	0.0	0.0
7. F. Hutchinson Cancer Rsch	80.0	2.1	0.0	77.6	--	0.3	0.0
8. Battelle Memorial Inst	75.5	64.8	0.0	8.3	1.5	0.0	0.8
9. Nat'l Academy of Sciences	66.8	17.8	5.1	3.1	18.7	10.9	11.2
10. SRI International	61.1	43.6	0.3	9.6	1.7	5.6	0.4

KEY: "--" = Less than $50,000

SOURCE: NSF/SRS, *Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions: FY 1996*